

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

# PATENT ABSTRACTS OF JAPAN

(11) Publication number : 2002-277719  
 (43) Date of publication of application : 25.09.2002

(51) Int. Cl. G02B 7/04  
 G02B 7/10

(21) Application number : 2001-083262 (71) Applicant : ASAHI OPTICAL CO LTD

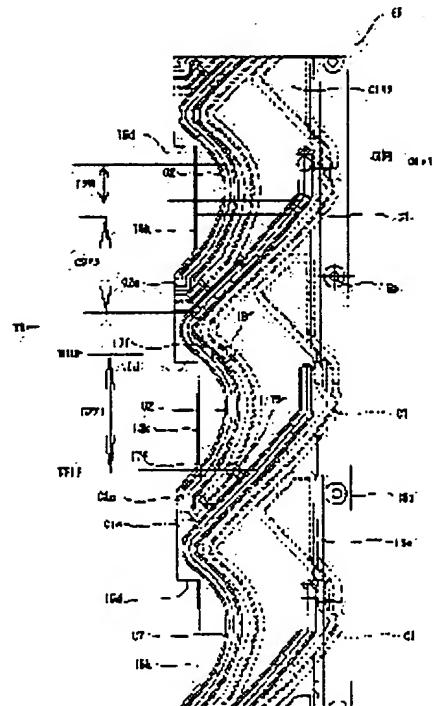
(22) Date of filing : 22.03.2001 (72) Inventor : NOMURA HIROSHI  
 YAMAZAKI YOSHIHIRO  
 OKUDA ISAO  
 NAKAMURA SATOSHI

## (54) LENS BARREL

### (57) Abstract:

**PROBLEM TO BE SOLVED:** To obtain a zoom lens barrel where a cam groove in which a follower pin is smoothly actuated is formed on the cam ring without making the diameter of the cam ring large even when the number of lens groups is increased, and which can restrain the lowering of the strength of the cam ring to the minimum.

**SOLUTION:** This lens barrel is equipped with two front and rear lens groups guided to straight advance in an optical axis direction, the follower pin respectively formed on the supporting frame bodies of the front and rear lens groups, and the cam ring having the cam groove in which the follower pins of the front and rear lens groups are engaged and driven to be rotated. In the lens barrel, the cam groove of the cam ring is equipped with a cam groove part for a front group lens and a cam groove part for a rear group lens in continuous groove shape, and has shape that either one of the front group lens or the rear group lens passes through the partial area of the cam groove for another lens group and faces the cam groove part for the one lens group.



rejection or application converted  
registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's  
decision of rejection]

[Date of requesting appeal against  
examiner's decision of rejection]

[Date of extinction of right]

Copyright (C) ; 1998, 2003 Japan Patent Office